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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Takenobu Sunagawa

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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 07/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application N .

09/926,085

Applicant(s)

SUNAGAWA ET AL.

Examiner

Tatyana Zalukaeva

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,6,9 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1,3-10 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/03/2003 has been entered.

2. Claims 1, 3, 6 and new claims 10, 11 are examined on the merits.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoebeke et al (U.S. 5,525,370).

Hoebeke discloses a thermosetting composition comprising as a binder a glycidyl group containing copolymer, which serves as a processing aid for linear carboxyl group polymer (abstract), such copolymer having number average molecular weight 4000 to

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10000 (weight average molecular weight is higher) (abstract). The copolymer contains **5-30% of glycidyl methacrylate and 70-95% of methyl Methacrylate**, whereby up to 25% of methyl Methacrylate may be replaced by another vinyl monomer. In details, the synthesis is described in Example 2, col. 10, 11.

The glycidyl group-containing acrylic copolymer, according to Hoebeke, is prepared by conventional polymerization techniques, either in mass, in emulsion, or in solution in an organic solvent. The monomers are copolymerized in the presence of a free radical polymerization initiator (benzoyl peroxide, dibutyl peroxide, azo-bis-isobutyronitrile, and the like) in an amount representing 0.1 to 1% by weight of the monomers).

For better control of this molecular weight and its distribution, the monomers are polymerized in the presence of a free radical polymerization initiator and **a chain transfer agent**. The polydispersity of these copolymers  $M_w/M_n$  is preferably between 1.5 and 2.5. To achieve a good control of the molecular weight and its distribution, a **chain transfer agent, preferably of the mercaptan type**, such as n-**dodecylmercaptan, t-dodecanethiol, isooctylmercaptan** is added in the course of the reaction. The chain transfer agent is used in an amount of from 1.5 to 4%, preferably between 2 and 3.5% by weight of the monomers used in the copolymerization (col. 6, lines 37-45). Therefore each and every limitation of the instant claims 10 and 11 is met by Hoebeke

6. Claims 1, 3, 6 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tugukuni et al (U.S. 4,256,805).

Tugukuni discloses a thermoplastic resin composition, comprising one of the ingredients as a copolymer obtained as follows: water 100 parts styrene 1 part **30 parts methyl methacrylate 20 parts 2-ethylhexyl acrylate 27 parts butyl acrylate 13 parts glycidyl methacrylate 10 parts dodecyl mercaptan 1 part** were radically polymerized according to any known methods. In the polymerization, as the polymerization initiator, there can be used, for instance, inorganic peroxides such as ammonium persulfate, potassium persulfate, hydrogen peroxide and percarbonates, organic peroxides such as acyl peroxides (e.g., benzoyl peroxide), alkyl hydroperoxides (e.g., tert-butyl hydroperoxide and p-menthane hydroperoxide) and dialkyl peroxides (e.g., di-tert-butyl peroxide), and nitrile compounds such as alpha.,.alpha.'-azo-bisisobutyronitrile. The amount of the catalyst is not particularly critical in this invention, but in general, the catalyst is used in an amount of 0.01 to 5% by weight of the total monomers. If required, a known chain transfer agent can be used in order to adjust the molecular weight (col. 6, lines 60-68)

Therefore, all the limitations of the instant claims are met by the disclosure of Tagukuni.

#### Response to Arguments

7. Applicant's arguments filed on July 03, 2003 with regard to reference to Tugukuni in rejection of claims 1, 3 and 6 have been fully considered but they are not persuasive. The crux of Applicants' arguments is that Tagukuni does not teach or

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suggest the use of t-butyl peroxy group for polymerization of a mixture comprising a methacrylate having an oxygen atom in addition to an ester bond. It is further argued by Applicants that Tagukuni does not teach a mercaptan having an alkyl ester groups as a chain transfer agent. This argument is moot because, as amended the instant claims 1, 3, and 6 DO NOT recite ANY chain transfer agent. Claim 9, which is presently added, is not rejected over Tagukuni.

Applicants' argument with regard to Tugukuni reference also resides in contention that Tugukuni does not teach di-t-butyl peroxide

In response to this, Applicants are cordially invited to Takuguni patent, col.6, lines 60-68, wherein tert-butyl hydroperoxide is named in line 66 and di-tert-butylperoxide is named in line 67. Even though the rejected claims do not recite the use of mercaptan chain transfer agent, it is noted here that Takuguni does disclose the dodecyl mercaptan, as a chain transfer agent, for instance, in Example 1, col.10. However, this statement is just informative and does not relate to the rejection, since claims 1, 3 and 6 do not recite a chain transfer agent.

Applicants arguments with regard to rejection of claims 1,3,6 over Hoebeke are moot, since the claims were amended, the rejection was withdrawn, and now only claims 9 and 10, that do not recite the tert-butyl peroxy initiator, are rejected over Hoebeke.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

**Tatyana Zalukova, Ph.D.**  
**Primary Examiner**  
**Art Unit 1713**



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July 18, 2003